

Having described the invention we, claim:

1. Apparatus for producing a micro-dispersed gas-liquid mixture, comprising a cylindrical housing with bottom and top covers which in turn incorporate:

5 a gas-liquid ejector unit consisting of said bottom cover of cylindrical housing, first part of a cylindrical surface of said housing, an inlet for gas connected to a gas injection line, an inlet nozzle for liquid connected to an injection liquid line and first partition of said cylindrical housing, said inlet nozzle has both outside and inner surfaces to adapt the conical orifice of said first partition to provide a required flow-rate of an ejected gas through said gas inlet;

10 a cavitation unit communicating through said first partition with said gas-liquid ejector unit, said cavitation unit comprising said first partition, second part of cylindrical surface of said housing, a hollow cylindrical cavitation chamber having at least one tangential inlet allowing a gas-liquid mixture from said gas-liquid ejector unit to flow inside the hollow cylindrical cavitation chamber and second partition having an orifice  
15 connected to the to said hollow cylindrical cavitation chamber;

a jet dispersing unit communicating through said second partition orifice with said cavitation unit comprising said second partition, third part of cylindrical surface of said cylindrical housing, a hollow cylindrical dispersing chamber attached to said second partition, said top cover of said cylindrical housing and outlet connected to an injection well, said hollow cylindrical dispersing chamber includes at least one outlet channel and  
20 a hollow dip at the bottom of said hollow cylindrical dispersing chamber, said outlet channel communicates with said outlet connected to said injection well.

2. Apparatus as defined in claim 1, wherein there is no said gas-liquid ejector unit and said cavitation unit has said inlet for gas connected to said hollow cylindrical cavitation chamber which in turn includes said tangential inlet communicating with said  
25 inlet for liquid connected to said injection liquid line.

5

3. A method for producing a micro-dispersed gas-liquid mixture comprising an injecting of a sweep fluid into an oil-bearing reservoir through an injection well, the sweep fluid comprising a micro-dispersed gas-liquid mixture having size of gas bubbles not exceeding 30 percent of an average diameter of an oil bearing reservoir pores under the pressure in gas injection line in the range of  $\pm 20$  percent of the pressure in liquid injection line and gas content accounting for 10-40 percent of a micro-dispersed gas-liquid mixture bulk volume.

4. A method as defined in claim 3, wherein there is intermittent injection of a micro-dispersed gas-liquid mixture and liquid without gas.